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ARIZONA APHIDIDAE

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The species of Aphididae described herewith are from the extensive collection of slides of that family brought together by Dr. Wehrle. This is the first of a projected series of papers on the Aphididae of Arizona. Unfortunately Dr. Wehrle died while this paper was in process in the hands of the senior author, who takes this opportunity to express his loss of a very able colleague whose untimely death prevented him from publishing much from his extensive investigations.

*Wapuna* new subgenus.

Similar to the genus *Aphis* except that the anterior margin of the head is somewhat broader and more flattened, and apparently the entire lack of the anal plate in the apterous viviparous female, and the very shallow and minute anal plate in the alate viviparous female.

Type *Wapuna tahosalea* new species.

*Aphis* (*Wapuna*) *tahosalea* new species.

*Apterous viviparous female.*

Size and general color.—Length from vertex to tip of abdomen varying from 1.11-1.57mm. The smaller sizes are more numerous. Data on color not available the mounted specimens having been cleared and stained. Color apparently pale, perhaps yellow or pale green with the head and thorax more or less light dusky. Antennae pale dusky, legs pale except for the apical portions of the tibiae and tarsi which are light dusky-brown. Cornicles, cauda, and spot anterior to cauda light brown. Apical segment of abdomen brown, this at times takes on the appearance of a pseudo anal plate.

Head and thorax.—Comparative lengths of antennal segments as follows: III .21-.286mm., IV .14-.18mm., V .15-.17 mm., VI .10-II + .24mm. There are no secondary sensoria. All antennal segments imbricated the imbrications being rather well developed. Antennal hair very sparse and less than one half of the width of the segment in length. Median anterior margin of head flat, with lateral portions somewhat raised suggesting low lateral tubercles, these are far removed from the first antennal segment which is well developed and almost out of proportion to the rest of the segments. The rostrum is extraordinarily long always extending well beyond the metathoracic pair of coxae to the mid region of the abdomen and in some cases almost to the base of the cornicles. The last segment of the rostrum is subequal to the length of the cauda. The prothorax is provided with a pair of lateral tubercles. The hind tibiae vary from .57-.78mm. in length. The hind tarsi are

.10mm. in length. The hair on the outer margin of the hind tibiae is much sparser and shorter than the hair on the inside margin. On the proximal third of the tibiae the hair are very scarce.

Abdomen.—The surface of the abdomen is imbricated. Lateral portions of the abdomen with few if any hair, these when present short and fine. Dorsum of abdomen with a few scattered long sharp pointed hair, these have their origin from small surface elevations. First abdominal segment with a pair of lateral tubercles, there is a similar pair posterior to the cornicles. Cornicles .17-.25mm. long, rather wide at the base, tapering to a poorly developed rim at the apex. The inner margin of the cornicles is almost straight the outer margin is slightly curved. The cornicles are coarsely imbricated. Cauda .128mm. long. The cauda is constricted just anterior to the middle, as a rule it has two strongly incurved hair on a side, its surface is setulose. Anal plate apparently absent. The posterior margin of abdomen with a few well developed hair.

#### *Alate viviparous female.*

Size and general color.—Length from vertex to tip of abdomen varying from 1.25-1.78mm. With the smaller sizes more abundant. Width of head through the eyes. 32mm. Data on color not available, probably light green or yellow, with small dusky areas at sides and a few similar smaller ones on the dorsum. Dusky areas just anterior to base of cornicles largest. Area just anterior to cauda more or less dusky. Cornicles and cauda brown. Head and thorax light dusky. Color of legs and antennae similar to those of apterous viviparous female.

Head and thorax.—Proportional lengths of antennal segments as follows: III .214-.286mm., IV .157-.17mm., V .14-.17mm., VI .10-.11 + .24-.25mm. Secondary sensoria confined to a row on third segment, large, with wide rims, far apart, extending throughout length of segment. Antennal hair sparse, ultra short and fine. All antennal segments imbricated. Anterior margin of head broad and flat except for median tubercle. Rostrum long extending to or beyond middle of abdomen, often almost reaching to base of cornicles. Second branch of media much closer to margin of wing than to the first branch. Prothorax with a pair of lateral tubercles.

Abdomen.—Imbrications and hair similar to those on apterous female. Apparently no lateral tubercles on the first abdominal segment. Tubercles posterior to the cornicles very small. Cornicles .11-.14mm. long, less wide at the base than those of the apterous female. Cauda .128mm. long constricted near middle with two pair of strongly incurved hair. Anal plate almost absent and always difficult to determine.

Holotype slide with alate and apterous viviparous females deposited in the United States National Museum. This species was collected on *Bryophyllum pinnatum* by L. P. Wehrle Jan. 10, 1944, at Tucson, Arizona.

Because of the strongly incurved hair on the cauda, the shape of the cauda, and the secondary sensoria a quick glance at this species suggests *Aphis gossypii* Glover, from which it can be separated at once by the longer rostrum and the absence or poor development of the anal plate.

*Aphis piutapa*, new species*Apterous viviparous female.*

Size and general color.—Length from vertex to tip of anal plate 1.31 mm. width of head through the eyes .35mm. Data on color not available. Head thorax and abdomen apparently the same color and free from duskiness. Most likely color light green. Antennae pale with the exception of the apical portions of segments V and VI which are light dusky. Legs light dusky with the apical portions of the tibiae and all of the tarsi darker. Cauda and cornicles pale dusky.

Head and thorax.—Proportional lengths of antennal segments as follows: III .21mm., IV .20mm., V .20mm., VI .085 + .057mm. Third antennal segment very lightly imbricated, segments IV V and VI progressively more so. Antennal hair almost absent, very fine, and ultra short. There are no secondary sensoria. Anterior margin of head broad and rather flat, provided with four short hair. The rostrum reaches the coxae of the metathoracic pair of legs. Tibiae with very fine short and exceedingly sparse hair on proximal three fourths. Hair on apical fourth longer but still sparse. Length of hind tibiae .757mm. Length of hind tarsi .128mm. Prothorax with a pair of lateral tubercles.

Abdomen.—Abdomen apparently without lateral tubercles. Surface of abdomen very faintly imbricated. Abdominal hair almost absent, very fine and extremely short. Cornicles .085mm. long feebly imbricated with the sides very slightly curved. Rim at apex of cornicles poorly developed. Cauda longer than the cornicles measuring .157mm. in length, very slightly constricted near middle, sides with three hair. The cauda has a well developed setulose surface. Anal plate broadly rounded.

*Alate viviparous female.*

Size and general color.—Length from vertex to tip of anal plate 1.31 mm. or equal to the length of the apterous viviparous female. Width of head through the eyes .343mm. Data on color not available. Head and thorax brown. Antennae dusky, femora dusky-brown, tibiae dusky with apical portions and tarsi dusky-brown. Cornicles pale dusky. Cauda dusky except for a clear area near base.

Head and thorax.—Comparative length of antennal segments as follows: III .214mm., IV .143mm., V .123mm., VI .085 + .057 mm. Secondary sensoria limited to the third antennal segment, irregular in size, arranged in a straight but very much crowded row on apical two thirds of segment. The secondary sensoria number eight to ten. The third antennal segment is comparatively smooth, remaining segments distinctly imbricated. Antennal hair almost absent and so fine and short that it is difficult to see. Rostrum just reaching coxae of metathoracic pair of legs. Anterior margin of head rather broad and flat, provided with four fine hair. Prothorax with a pair of lateral tubercles. Second branch of media much closer to margin of wing than to first branch. Veins of wings pale dusky. Stigma long and narrow, dusky in color. Hind tibiae .77mm. long. Hair on hind tibiae if anything more sparse than that on apterous viviparous female, in other respects much the same except that it is not longer at the apex.

Abdomen.—Segment posterior to cornicles provided with a pair of

very small lateral tubercles. Hair on abdomen almost absent, very short and fine. Cornicles .057mm. long, slightly imbricated the sides almost straight, the rim is poorly developed. The cauda is .128mm. long or much longer than the cornicles, its surface is setulose, it is slightly constricted just before the middle. There are three hair on one side and two on the other. The anal plate is similar to that of the apterous viviparous female.

The uncommonly short unguis and the fact that the cornicles are much shorter than the cauda separate this species at once from most other species of the genus *Aphis*. This condition prevails in *Aphis minutissima* G. & P. but in this species segments four and five of the rostrum are conspicuously slender and the cornicles and cauda differ. Because of the short unguis this species is also suggestive of *Aphis tetrapteralis* Cockerell known to me only by the figure and description by Gillette and Palmer. From this species *pinetapa* differs, in size, the less acute cauda with fewer lateral hair, a larger number of secondary sensoria, shorter rostrum, and the second work of the media much closer to the margin of the wing. The host plants of the two species also differ.

Holotype alate viviparous female. Morphotype apterous viviparous female. Deposited in United States National Museum. Holotype and morphotype mounted on one slide and representing so far as known all material. Host *Lycium parviflorum*. Collected at Tucson, Arizona, April 23, 1935, by R. B. Streets.

#### *Aphis wahena* new species

##### *Apterous viviparous female.*

Size and general color.—Length from vertex to tip of anal plate varying from 1.7-1.47mm. Color notes not available, but the species was referred to as being black. Color of head thorax and abdomen of mounted specimens similar and very dark in life most likely black as described. Entire antennae, legs, cornicles and all of cauda except the median dorsal portion anterior to constriction which is pale, black.

Head and thorax.—Comparative length of antennal segments as follows: III .314-.328mm., IV .185-.214mm., V .143-.171mm., VI .07-.1 + .171-.30mm. Secondary sensoria distributed as follows: III 3-5 most common number 3, IV 6-10 as a rule 7 or more. V 1-4 as a rule 2 or 3. The secondary sensoria are small, have wide rims and are only slightly tuberculate. On III the sensoria are arranged in a row on the apical third of segment, on IV they are arranged in a row with the exception of two or three, on this segment they extend from end to end of the segment. On IV it is common for two or three sensoria to be grouped very close together. On V when the sensoria number more than one they are far apart and arranged in a row. All antennal segments are coarsely imbricated. Antennal hair minute and very sparse. The rostrum extends to just beyond the metathoracic coxae. Segments IV and V of the rostrum are slightly longer than the hind tarsi, segment four is rather thin but not needle-like. The anterior margin of the head is rather broad and slightly convex it carries several very minute hair. The prothorax is provided with a pair of lateral tubercles. The hind tibiae measure about .786mm. in length. The hair on the outer margin

of the hind tibiae is very sparse and equally distant throughout the length of the tibiae, with the exception of the hair at the apex it is about one half the width of the tibiae in length. The hair on this margin is much inclined. The hair on the inner margin of the tibiae is less inclined, longer and about two times as abundant as that on the outer margin. The hind tarsi are .1mm. long.

Abdomen.—The first segment of the abdomen is provided with a pair of small lateral tubercles, a similar pair is located posterior to the cornicles. The surface of the abdomen is very finely imbricated, the imbrications being very close together. Abdominal hair very sparse, minute and very fine, similar to that on antennae. The cornicles vary in length from .347-.371mm. being exceptionally long for an *Aphis*. The cornicles are very coarsely imbricated throughout, a rim is present at the apex but this is not well developed. The cornicles show a tendency to bend outwardly and with the exception of a wide area at the base have a fairly uniform width. The cauda is .143mm. long, its surface is coarsely setulose. The cauda is constricted near the middle, and most specimens show a secondary constriction near the apex, each side is provided with two strongly incurved hair.

#### *Alate viviparous female.*

Size and general color.—Length about .929mm. Data on color not available but apparently similar to apterous viviparous female in all respects, however some mounted specimens appear lighter in color than others.

Head and thorax.—Comparative length of antennal segments as follows: III .314-.371mm., IV .185-.214mm., V .157-.185mm., VI .071 + .314mm. Secondary sensoria distributed as follows: III 12-15 irregularly arranged but confined more or less to one side of segment. IV 6-9 irregularly arranged but confined largely to one side. V 3-4 irregularly spaced, but more or less in a row. All sensoria comparatively large, with wide rims, only slightly tuberculate. All antennal segments coarsely imbricated. Antennal hair minute, and sparse. Rostrum extending slightly beyond the coxae of the metathoracic pair of legs, fourth segment almost two times length of base of VI. Anterior margin of head convex with a median tubercle, provided with minute hair. Prothorax with a pair of small lateral tubercles. Hind tibiae .929mm. long with hair similar to that of apterous viviparous female. Stigma pale dusky with a scale-like surface, rather narrow. Radial sector little bowed. Second branch of media much closer to margin of wing than to first branch. No veins reach the margin of the wing. Veins pale lightly bordered with dusky.

Abdomen.—First abdominal segment and segment posterior to cornicles provided with a pair of small lateral tubercles. Cornicles .30mm. long otherwise as in the apterous viviparous female. Cauda as in apterous viviparous female. 11-14mm. long.

The cornicles of this species are almost exact duplicates of the cornicles of *Aphis illinoisensis* Shimer. The antennae except for sensoria and relative lengths of segments are also suggestive of *illinoisensis*, however the cauda differs from that species not only in shape but in number of

hair. From *Aphis nyctalis* H&F it can be quickly separated by the cauda hair, and much longer cornicles.

The type slide of this species has been deposited in the United States National Museum, it contains both alate and apterous viviparous females. Data associated with this species. Collected by L. P. Wehrle, Ramsey Canyon, Huachuca Mountains, Arizona, August 10, 1949. Host *Viguiera cordifolia*.